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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,510	08/28/2003	Gerald Charles Tustin	71535	6814

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EXAMINER	
HAILEY, PATRICIA L	

ART UNIT	PAPER NUMBER
1755	

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/650,510	TUSTIN ET AL.	
	Examiner	Art Unit	
	Patricia L. Hailey	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) *9-12 and 16-40* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 13-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ~~10/03/05~~. 10/08/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-8 and 13-15, in the reply filed on October 3, 2005, is acknowledged. The traversal is on the ground(s) that Applicants opine that there no serious burden on the Examiner to examine all the claimed inventions, as searches for them would be co-extensive. This is not found persuasive because, as set forth in the restriction requirement, nine inventions were presented to Applicants' for election.

Irrespective of whether the groups requested are independent and distinct inventions. This is not found persuasive because 37 CFR 1.142 states "for purposes of the initial requirement, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP § 808.02." A prima facie burden has been shown by separate classification as presented previously in the Detailed Action of September 14, 2005.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 9-12 and 16-40 are hereby withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim.

Claims 1-8 and 13-15 are under consideration by the Examiner.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 103(a) as being anticipated by Maroldo et al. (U. S. Patent No. 4,839,331).

Maroldo et al. teach adsorbent particles made by partially pyrolyzing, in an inert atmosphere, at temperatures of from about 300°C to about 1200°C, polysulfonated, macroporous, vinylaromatic copolymers (considered to read upon **claim 1**). See col. 3, lines 3-12 of Maroldo et al.

In the Examples of Maroldo et al., exemplary polysulfonated particles (defined as beads; see col. 9, lines 7 and 8 of Maroldo et al.; considered to read upon **claim 2**) are depicted; these particles exhibit BET surface areas within the respectively recited ranges in Applicants' **claims 4, 5, and 15**. See Tables 1, 2, 5 and 6 of Maroldo et al., as well as the corresponding Examples.

Additionally, Tables 1 and 6 of Maroldo et al. also show pore volume ranges for the polysulfonated particles. At col. 4, lines 40-48, Maroldo et al. disclose pore diameter ranges categorized as "macropore", "micropore", and "mesopore". Based on Applicants' definition of "pore volume ratio", i.e., the sum of the macropore volume and mesopore volume divided by the micropore volume, the pore volume ratio of, for example, the polysulfonated copolymer of Example 4A, exhibits a pore volume ratio of (0.44-0)/(0.219+0.0152) = 1.878, or, optionally, (0.44 + .0152)/.219 = 2.078 (based on the definitions of "macropore", "mesopore", and "micropore", as disclosed by Maroldo et al.; the first equation being based on the assumption that the amount of mesopore

volume is zero). Thus, the polysulfonated particles of Maroldo et al. are considered to exhibit pore volume ratios comparable to those recited in **claims 5 and 15**.

The particles are polysulfonated by contacting the macroporous resin with fuming sulfuric acid (also known as oleum) for a period of from about 5 hours to about 20 hours or more at temperatures ranging from about 100°C to about 150°C. See col. 4, line 57 to col. 5, line 5 of Maroldo et al. (considered to read upon the limitations of **claim 13** regarding the "sulfonation conditions of time, temperature and pressure...", i.e., **step (i)**), which also discloses that the polysulfonated resin is preferably hydrated, then washed to remove acid and dried prior to calcining (considered to read upon **step (ii) in claim 13**).

The pyrolysis may be performed at temperatures from about 300°C to about 1200°C; further, the particles may be agitated and/or heated with steam or hot gases. See col. 5, lines 6-16 of Maroldo et al. (considered to read upon **step (iii) in claim 13**).

Maroldo et al. also teach that the pyrolyzed polysulfonated particles may be further activated by exposure to gases such as oxygen, steam, ammonia, carbon dioxide at temperatures ranging from about 300°C to about 1200°C or more. See col. 5, lines 36-42 of Maroldo et al. (considered to read upon **claim 14**).

Maroldo et al. is silent with respect to the particle size of the polysulfonated particles. However, because Maroldo et al. disclose carbonized polysulfonated polymer particles exhibiting surface areas and pore volume ratios comparable to that respectively claimed, it would have been obvious to one skilled in the art at the time the

invention was made to reasonably expect that the particles of Maroldo et al. would also exhibit particle sizes comparable to that respectively claimed, absent the showing of convincing evidence to the contrary.

It is well settled that when a claimed composition appears to be substantially the same as a composition disclosed in the prior art, the burden is properly upon the applicant to prove by way of tangible evidence that the prior art composition does not necessarily possess characteristics attributed to the CLAIMED composition. In re Spada, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Circ. 1990); In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980); In re Swinehart, 439 F.2d 2109, 169 USPQ 226 (CCPA 1971).

Additionally, although Maroldo et al. disclose the employment of "20% oleum" (Example 3) and "4% oleum" (Example 21), the reference does not specifically disclose "30% oleum", as recited in claim 13. However, Maroldo et al. at col. 4, lines 57-59 disclose that it is known in the art to employ fuming sulfuric acid ("oleum") to conduct polysulfonation of macroporous resins. It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine through routine experimentation the optimal concentration of fuming sulfuric acid/oleum in an endeavor to obtain a macroporous resin having the desired extent of polysulfonation.

11. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zoeller et al. (U. S. Patent No. 6,452,043) in view of Maroldo et al. (U. S. Patent No. 4,839,331).

Zoeller et al. disclose catalysts comprising a catalytically effective amount of an active metal selected from iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, and platinum (considered to read upon the limitations "Groups 4-12 of the Periodic Table" and "Groups 8-12 of the Periodic Table" in **claims 6 and 8**) and, optionally, a secondary metallic promoter, selected from alkali metals, alkaline earth metals, lanthanides, in which the active metal is associated with a support matrix comprising carbonized polysulfonated divinylbenzene-styrene copolymers. See col. 5, line 50 to col. 6, line 4 of Zoeller et al., which also makes reference to Maroldo et al. as suitable carbonized polysulfonated divinylbenzene-styrene copolymers (col. 6, lines 2-4).

Additionally, Zoeller et al. disclose that the active metal and secondary metal are associated with the support material as a result of soluble impregnation of the metals which may result in either a salt of the metals, an oxide of the metals, or metal in a free state deposited on the support. See col. 6, line 66 to col. 7, line 3 of Zoeller et al. This disclosure is considered to read upon the alkali metal and alkaline earth metal oxides recited in **claim 7**.

Although Zoeller et al. disclose a support matrix that reads upon the limitation "carbonized polysulfonated vinylaromatic polymer" recited in claim 6, the reference is silent with respect to the properties also recited in this claim.

Maroldo et al. is relied upon for its teachings with respect to claims 1-5 and 13-15, as stated above, with respect to the claimed properties of the carbonized polymer particles, as recited in claim 6.

Since the prior art appears to disclose the invention as claimed on the basis of inherent property characteristics which either anticipate or render the claimed product obvious (as addressed in the above 102(b) rejection), therefore, the burden of proof that it does or does not shifts to the applicant as in *In re Best* 195 USPQ 430, 433 (CCPA 1877).

12. ***Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zoeller et al. (U. S. Patent No. 6,235,673) in view of Maroldo et al. (U. S. Patent No. 4,839,331).***

Zoeller et al. disclose catalysts comprising a catalytically effective amount of an active metal selected from iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, and platinum (considered to read upon the limitations "Groups 4-12 of the Periodic Table" and "Groups 8-12 of the Periodic Table" in **claims 6 and 8**) and, optionally, a secondary metallic promoter, selected from alkali metals, alkaline earth metals, lanthanides, in which the active metal is associated with a support matrix comprising carbonized polysulfonated divinylbenzene-styrene copolymers. See col. 4, line 48 to col. 5, line 30 of Zoeller et al., which also makes reference to Maroldo et al. as suitable carbonized polysulfonated divinylbenzene-styrene copolymers (col. 5, line 28).

Additionally, Zoeller et al. disclose that the active metal and secondary metal are associated with the support material as a result of soluble impregnation of the metals

which may result in either a salt of the metals, an oxide of the metals, or metal in a free state deposited on the support. See col. 6, lines 24-28 of Zoeller et al. This disclosure is considered to read upon the alkali metal and alkaline earth metal oxides recited in **claim 7**.

Although Zoeller et al. disclose a support matrix that reads upon the limitation "carbonized polysulfonated vinylaromatic polymer" recited in claim 6, the reference is silent with respect to the properties also recited in this claim.

Maroldo et al. is relied upon for its teachings with respect to claims 1-5 and 13-15, as stated above, with respect to the claimed properties of the carbonized polymer particles, as recited in claim 6.

Since the prior art appears to disclose the invention as claimed on the basis of inherent property characteristics which either anticipate or render the claimed product obvious (as addressed in the above 102(b) rejection), therefore, the burden of proof that it does or does not shifts to the applicant as in *In re Best* 195 USPQ 430, 433 (CCPA 1877).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patricia L. Hailey/plh
Examiner, Art Unit 1755
December 5, 2005

J.A. LORENGO
SUPERVISORY PATENT EXAMINER